

**REEVALUATION OF THE PLANT BUG GENUS *ICODEMA*,
WITH DESCRIPTIONS OF TWO NEW GENERA TO
ACCOMMODATE FIVE NEARCTIC SPECIES
(HETEROPTERA: MIRIDAE: PHYLINAE)**

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Abstract.—Study of *Icodema nigrolineatum* (Knight) has shown that it and four other related Nearctic species are not congeneric with Palearctic *I. infuscatum* (Fieber), the type of the genus. As a result, the new genus *Americodema* is established to accommodate *A. nigrolineatum* (Knight), new combination, and *A. knighti* (Kerzhner and Schuh), new combination, and the new genus *Occidentodema* is erected for the three new species *O. clypealis*, *O. mcfarlandi*, and *O. polhemusi* from the western United States and Mexico. Generic relationships are discussed, host plants and distributions are reviewed, and diagnostic information and a key to species are provided to facilitate recognition.

Key words: Heteroptera, Miridae, Phylinae, *Icodema*, *Americodema*, *Occidentodema*, new genera, new species, hosts, distribution.

Icodema was established to hold the European *Plagiognathus infuscatum* Fieber (Reuter 1875). The genus remained monotypic until Carvalho (1955) transferred the Nearctic *Plagiognathus nigrolineatus* Knight into it, thus giving *Icodema* Holarctic status. Little information is available on the relationship of *Icodema* to other phylinae genera, although I (Henry 1989) noted that members of *Icodema*, *Cariniocoris* Henry, and the Palearctic genus *Phylus* Hahn also possessed a distinct keel on the ventral surface of the male genital capsule and lacked spots at the bases of the tibial spines, suggesting that they might form a monophyletic group.

The present paper was prompted by the discovery of four other Nearctic species also possessing keels on the male genital capsule. Close examination of this material and specimens of the widespread *I. nigrolineatum* indicated that, although these species are quite similar, none is congeneric with the Old World *I. infuscatum*. Based on male genitalia, *I. nigrolineatum* and *Plagiognathus knighti* Kerzhner and Schuh form an eastern species pair, and three new species from the western United States and Mexico form another group, each of which is considered to represent a new genus described in this paper.

Herein, I redescribe *Icodema* and its only included species *I. infuscatum* and establish the new genus *Americodema* to accommodate *I. nigrolineatum* and *Plagiognathus knighti*, and the new genus *Occidentodema* for the three new species *O. clypealis*, *O. mcfarlandi*, and *O. polhemusi* from the western United States and Mexico. A habitus drawing of *A. nigrolineatum*, scanning electron micrographs of selected structures for the five Nearctic species, figures of male genitalia of all species,

and a key to the species of *Americodema* and *Occidentodema* are provided to aid their recognition. All taxa are presented alphabetically by genus and species.

The following abbreviations are used for institutions cited in this paper: AMNH (American Museum of Natural History, New York); JTPC (J. T. Polhemus Collection, Englewood); BNHM (The [British] Natural History Museum, London); CAS (California Academy of Sciences, San Francisco); TAM (Texas A & M University, College Station); UBC (University of California, Berkeley); and USNM ([United States] National Museum of Natural History, Smithsonian Institution, Washington, DC).

Americodema, new genus

Type species. *Plagiognathus nigrolineatus* Knight 1923.

Diagnosis. Species of this genus are recognized by a combination of the uniformly pale greenish-white to greenish coloration, with or without fuscous stripes and spots on the antennae and legs, the lack of spots at the bases of the tibial spines (except for indistinct spots on some metatibial spines), the keeled male genital capsule, the relatively stout, twisted, strongly S-shaped vesica, and by the slender phallosome lacking a lateral notch as is found in *Icodema*.

Description. Length 3.28 to 4.40 mm. Elongate, oval. General coloration pale green to greenish white, with or without fuscous lines and spots on the legs and antennae. Head much broader than long; eyes prominent, granulate, more so in males; vertex about $\frac{1}{2}$ the width of head in males, slightly greater than $\frac{1}{2}$ in females. Rostrum extending to metacoxae; length of segments I, II, and IV subequal, segment III slightly shorter. Antennae slender, moderately long, ranging from 0.65–0.70 the length of body in σ σ , 0.63–0.67 in ρ ρ ; segment I shortest, stoutest; segment II longest, segment III ranging from 0.54–0.64 the length of II in σ σ , from 0.48–0.62 in ρ ρ ; segment IV slightly longer than I. Pronotum trapeziform, about two times wider at base than median length; scutellum equilateral. Hemelytra subparallel, opaque to translucent, particularly on corium; pubescence short, simple, recumbent; membrane translucent with two distinct areoles. Legs slender, often marked with spots or narrow fuscous lines; tibial spines lacking dark spots at bases, metatibiae sometimes with a few indistinct dark spots at bases of basal spines; claws with hairlike parempodia. Male genital capsule with a distinct median keel ventrally (Figs. 3–6, 10–13), extending from base of segment to truncated caudal area just below aperture; left (Figs. 14, 18) and right (Figs. 15, 19) parameres typically phyline; vesica stout, strongly twisted, S-shaped (Figs. 16, 20), with a large, distinct, subapical secondary gonopore; phallosome (Figs. 17, 21) slender, narrowly tapered to apex, without lateral notch or tooth.

Etymology. The generic name *Americodema* is created by combining a prefix from the locality name "America," often used instead of United States of America, and from the root of the generic name *Icodema* to reflect the historical association of the species in this genus to the Palearctic *Icodema infuscatum*. The gender is interpreted as neuter, following Steyskal (1973).

Discussion. Males of *Americodema* and *Icodema*, as well as those of the new genus *Occidentodema*, possess a distinct keel that appears to be formed by the bilaterally compressed ventral edge of the genital capsule. As pointed out by Henry (1989), at

least two other genera also are known to have well-developed genital keels. The Nearctic *Cariniocoris* and the predominately Palearctic [*P. coryli* (L.) introduced into northwestern North America] genus *Phylus* have keel-like carinae on the male genital capsule, but these structures are reduced to simpler, more narrow ridges and probably are not homologous.

All keel-bearing genera mentioned above lack distinct dark spots at the bases of the tibial spines that are typical of most other phylines, but the absence of spots is widespread in the subfamily and likely reflects convergence. I note that one of the two species of *Americodema* (*A. nigrolineatum*) and all three species of *Occidentodema* do have some indistinct dark spots, primarily on the basal three or four spines of the hind tibia, a condition not found in the other three genera.

Species of *Americodema*, *Icodema*, *Occidentodema*, and *Phylus* have a generally S-shaped vesica, whereas *Cariniocoris* has a more C-shaped vesica. The vesica is slender in *Icodema* and distinctly more stout in *Occidentodema*, *Phylus*, and *Americodema*; however, the secondary gonopore in *Icodema* and *Phylus* is positioned well back from the apex near the middle of the vesica, whereas in *Americodema* and *Occidentodema* it is apical or subapical.

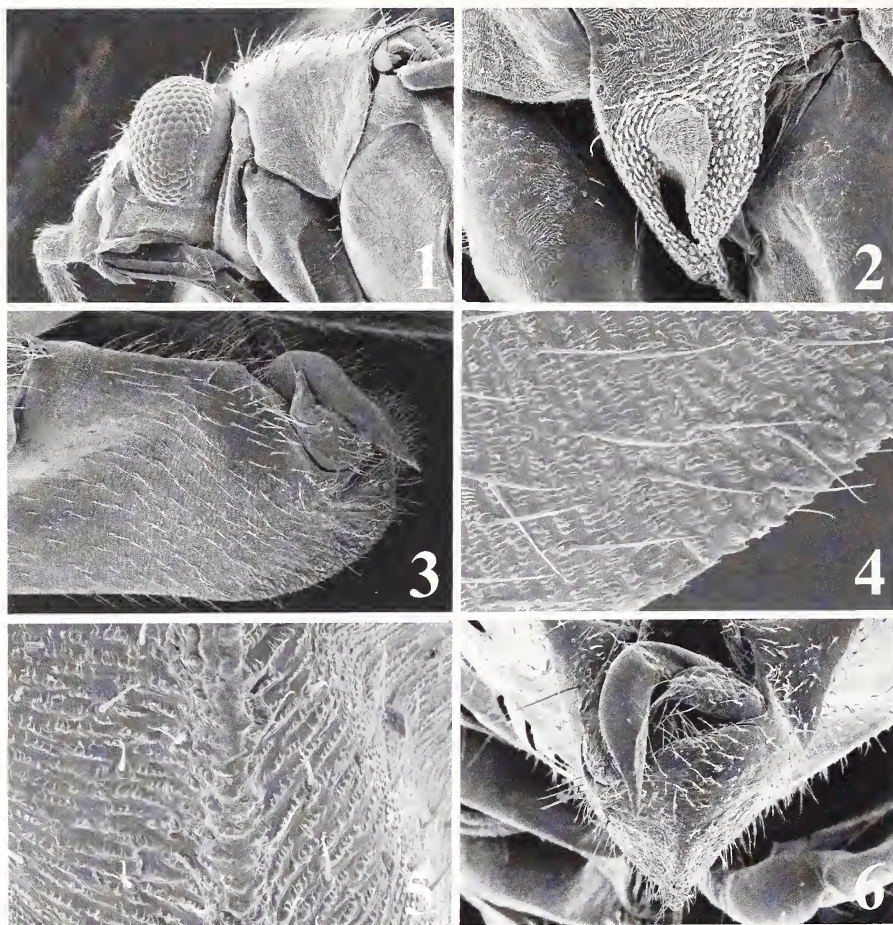
The vesica of the species I am including in *Americodema* is strongly twisted and S-shaped, with long, decurving apical spiculi and a subapical secondary gonopore, differing from species of *Occidentodema*, which have a nontwisted, weakly S-shaped vesica, with relatively short apical spiculi and an apical secondary gonopore.

Americodema and *Occidentodema* also are very similar in overall external appearance. All species are pale greenish white or golden yellow and all but one (*A. knighti*) possess black lines on the pro- and metafemora and antennal segments I and II and a black spot at the base of each tibia. Convergence is common in the Miridae, including, for example, *Plagiognathus ribesi* Kelton (Kelton 1982) and species of *Lineatopsallus* Henry (Henry 1991), which are also pale and have similar black lines and spots on the appendages. These taxa, however, have entirely different male genitalia and lack any trace of keels on the male genital capsule, indicating that they are not closely related to *Americodema* or *Occidentodema*.

The following key uses only external characters to separate genera and species. See the respective generic diagnoses for information on internal characters.

KEY TO THE SPECIES OF AMERICODEMA AND OCCIDENTODEMA

- 1. Mesofemur lacking a dorsal black line; pro- and metafemora with or without black lines (*Americodema*, n. gen.) 2
- All femora with distinct dorsal black lines (*Occidentodema*, n. gen.) 3
- 2. Apex of tylus with a distinct black spot; antennal segments I and II and pro- and metafemora with narrow black lines; widespread in eastern North America, west to Minnesota, Texas, and northern Mexico *A. nigrolineatum* (Knight)
- Apex of tylus and all appendages uniformly pale greenish white, lacking black markings; District of Columbia (Washington, DC) and Virginia, west to Missouri and Texas *A. knighti* Kerzhner and Schuh
- 3. Apex of tylus lacking a dark spot; overall body coloration golden yellow; Arizona, Texas, Utah, and northern Mexico *O. mcfarlandi*, n. sp.
- Apex of tylus with a distinct dark spot; overall coloration pale greenish white or golden yellow 4



Figs. 1–6. Scanning electron micrographs of *Americodemus knighti*. 1. Head and pronotum, lateral aspect (112 \times). 2. Ostiolar area (368 \times). 3. Male genital capsule, lateral aspect (179 \times). 4. Enlargement of genital keel, lateral aspect (690 \times). 5. Enlargement of genital keel, caudal aspect (740 \times). 6. Male genital capsule, caudal aspect (191 \times).

4. Coloration golden yellow; antennal segment II of male shorter than greatest width across hemelytra; Arizona *O. clypealis*, n. sp.
 – Coloration pale greenish white; antennal segment II of male distinctly longer than greatest width across hemelytra; Arizona, Colorado, New Mexico, and Utah. . . *O. polhemusi*, n. sp.

Americodemus knighti Kerzhner and Schuh, 1998, new combination

Figs. 1–6, 14–17

Plagiognathus albellus Knight 1953: 509; Carvalho 1958: 94; Henry and Wheeler 1988: 482; Wheeler 1995: 29; Schuh 1995: 381. Preoccupied by *Plagiognathus albella* Stichel 1934: 282.

Plagiognathus knighti Kerzhner and Schuh 1998: 171. New name for the preoccupied *P. albellus* Knight.

Diagnosis. Recognized by the uniformly pale greenish-white to pale greenish-yellow coloration.

Description. Male (N = 10): Length 3.32–3.64 mm, width 1.24–1.36 mm. Overall coloration of body and appendages pallid to pale greenish white, fading to pale greenish yellow in some preserved specimens; appendages uniformly pale. Pubescence, short, simple, pale, and recumbent. *Head* (Fig. 1): Width 0.68–0.72 mm, vertex 0.32–0.36 mm; uniformly pallid to pale greenish white. *Rostrum*: Length 1.20–1.28 mm, extending to apices of mesocoxae. *Antenna*: Segment I, length 0.28–0.30 mm; II, 1.00–1.12 mm; III, 0.60–0.72 mm; IV, 0.30–0.40 mm. *Pronotum*: Length 0.52–0.66 mm, basal width 1.04–1.08 mm. *Ostiolar area*: Fig. 2.

Male genital capsule and median keel (Figs. 3–6); left paramere (Fig. 14); right paramere (Fig. 15); vesica (Fig. 16); phallosome (Figs. 17a, b).

Female (N = 10): Length 3.28–3.72 mm, width 1.24–1.28 mm. *Head*: Width 0.66–0.70 mm, vertex 0.36–0.38 mm. *Rostrum*: Length 1.18–1.34 mm, extending to apices of metacoxae. *Antenna*: Segment I, length 0.26–0.28 mm; II, 0.94–1.16 mm; III, 0.56–0.72 mm; IV, 0.32–0.34 mm. *Pronotum*: Length 0.48–0.52 mm, basal width 1.04–1.10.

Hosts. Sycamore, *Platanus occidentalis* L.; London plane, *P. x acerifolia* (Aiton) Willd. (Wheeler 1995).

Distribution. United States (Missouri, Texas, and Virginia) (Knight 1953, Wheeler 1995). Arkansas and the District of Columbia (Washington, DC) are new records.

Material examined. UNITED STATES: **Arkansas**: 1 ♀, Pulaski Co., 1 May '30, D. Isely (USNM). **District of Columbia** (Washington, D.C.): 1 ♂, May 31, 1918, H. B. Dietz, on sycamore (USNM). **Missouri**: ♂ holotype and 1 ♂ paratype (of *Plagiognathus albellus* Knight), St. Louis, VI-2, 16-1944, R. C. Froeschner (USNM). **Texas**: 4 ♂♂, 7 ♀♀, Jackson Co., nr. Port Lavaca, Rt. 35, 25 Apr. 1983, T. J. Henry and A. G. Wheeler, Jr., on *Platanus occidentalis* (USNM); 3 ♂♂, 1 ♀, Leon Co., 5.5 mi north of Flynn, May 14, 1997, A. R. Gillogly (TAM); 22 ♂♂, 49 ♀♀, Mason Co., 8.5 mi south Mason Llano River crossing, May 13, 1997, Gillogly and Schaffner, taken from sycamore (TAM, USNM); 5 ♂♂, 7 ♀♀, Uvalde Co., 9 mi west Utopia, May 1, 1983, J. C. Schaffner, ex. sycamore (nymphs) (TAM); 1 ♂, 2 ♂♂, Val Verde Co., 22.5 mi north Comstock Devil's River crossing, May 11, 1997, Gillogly and Schaffner (TAM); 2 ♂♂, 2 ♀♀, Travis Co., Rt. 29, Georgetown, along San Gabriel River, 5 May 1983, T. J. Henry, on *Platanus occidentalis* (USNM). **Virginia**: 10 ♂♂, 10 ♀♀, Albemarle Co., Univ. Virginia campus, Charlottesville, 29 May 1995, A. G. Wheeler, Jr., on *Platanus occidentalis* (USNM).

Americodema nigrolineatum (Knight), 1923, new combination

Figs. 7–13, 18–21

Macrotylus vestitus: Wirtner 1904: 201. Record clarified by Wheeler and Henry 1977: 150

Plagiognathus nigrolineatus Knight 1923: 443; Blatchley 1926: 928; Knight 1941: 26; Froeschner 1949; Khalaf 1971: 340

Icodema nigrolineata: Carvalho 1955: 226, 1958: 53; Schuh 1995: 326

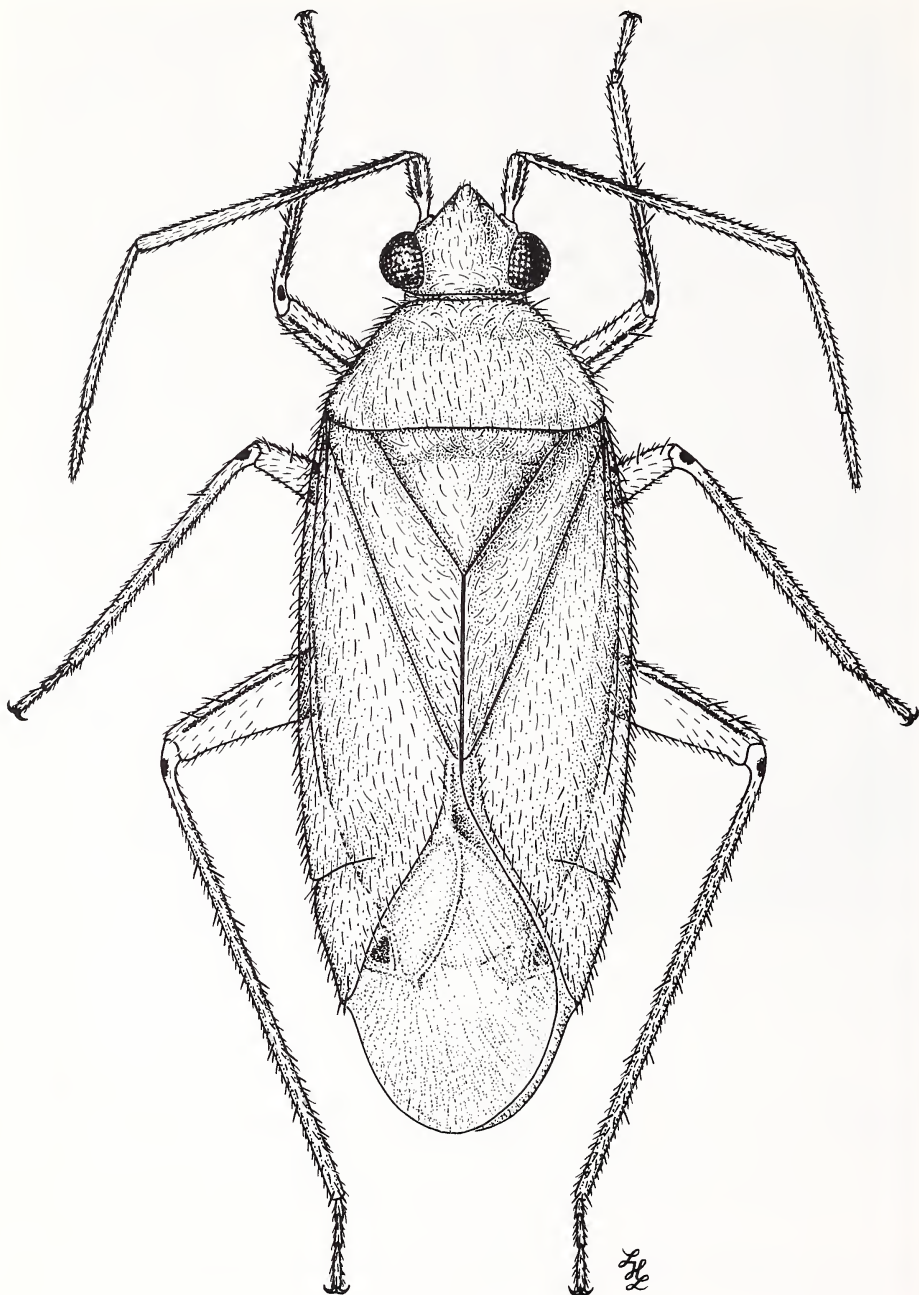


Fig. 7. Dorsal habitus of *Americodema nigrolineatum*.

Icodema nigrolineatum: Steyskal 1973: 206; Henry and Smith 1979: 213; Kelton 1980: 292; Henry and Wheeler 1988: 468

Diagnosis. Recognized by the presence of a fuscous spot at the apex of the tylus and the relatively large fuscous spot (subequal in size to a knee spot) on the anterior apical $\frac{1}{3}$ of the metafemur. *Americodema nigrolineatum* is similar to *Occidentodema polhemusi* in size and pale greenish-white coloration, but can be separated by the presence of a large subapical metafemoral spot, the shorter second antennal segment that is shorter than the widest area across the hemelytra, and the lack of a black line on the dorsal edge of the mesofemur.

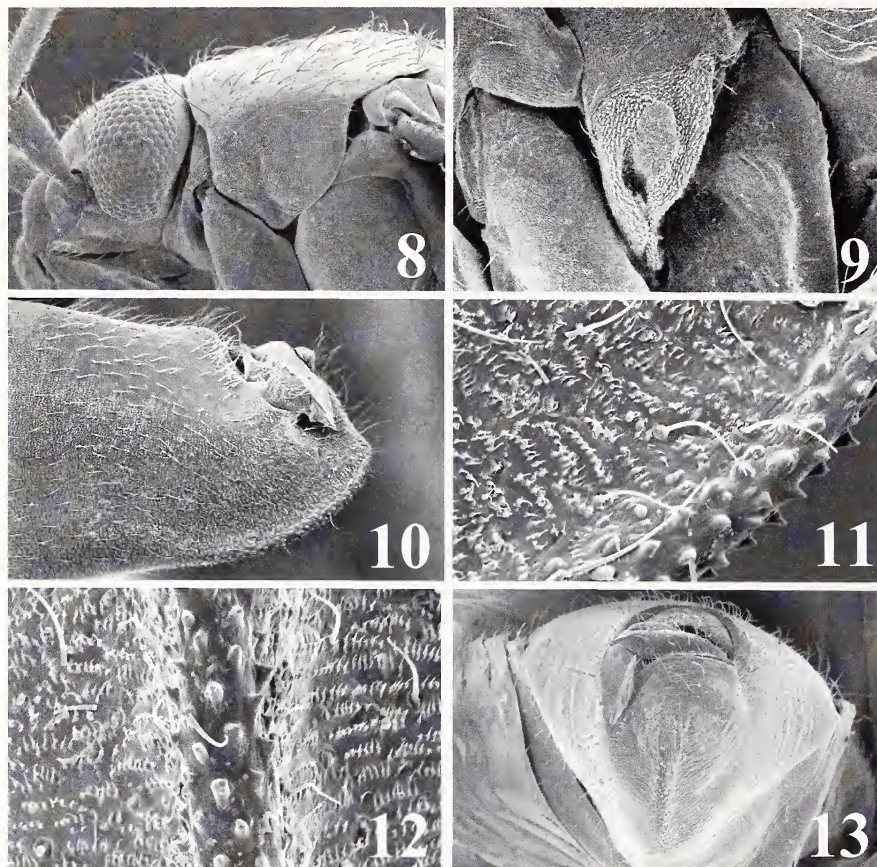
Description. Male (N = 10): Length 3.68–4.40 mm, width 1.36–1.52 mm. Overall coloration pallid to pale greenish white, turning more yellowish in preserved specimens. *Head* (Fig. 8): Width 0.74–0.82 mm, vertex 0.34–0.36 mm; uniformly pale greenish white, with a fuscous spot at the apex of the tylus. *Rostrum*: Length 1.42–1.50 mm, extending to bases of metacoxae. *Antenna*: Segment I, length 0.28–0.32 mm, with an indistinct subapical spot on inner surface and two fuscous stripes, the ventral one extending from base to near apex and the dorsal one occupying middle $\frac{1}{2}$ of segment; II, 1.22–1.40 mm, yellow with a narrow fuscous stripe extending to middle from base; III, 0.68–0.76 mm; IV, 0.34–0.36 mm. *Pronotum*: Length 0.56–0.66 mm, basal width 1.12–1.36 mm. Hemelytra pale to pale greenish white, corium more translucent; membrane translucent white, small areole often infuscated. *Ostiole area*: Fig. 9. Legs pale; profemur with an indistinct fuscous, dorsal stripe on apical $\frac{1}{3}$, mesofemur uniformly pale, occasionally with a short subapical stripe on posterior face, metafemur with two fuscous stripes, an indistinct, sometimes spotted one dorsally on apical $\frac{1}{2}$ and a more distinct one ventrally on apical $\frac{1}{2}$, anterior face with a single, relatively large fuscous spot at middle of apical $\frac{1}{3}$; each tibia with a distinct fuscous knee spot, metatibia often with indistinct fuscous spots at bases of basal 3 or 4 spines.

Male genital capsule and median keel (Figs. 10–13); left paramere (Fig. 18); right paramere (Fig. 19); vesica (Fig. 20); phallosome (Fig. 21a, b).

Female (N = 10): Length 4.00–4.32 mm, width 1.56–1.68 mm. *Head*: Width 0.38–0.40 mm, vertex 0.76–0.78 mm. *Rostrum*: Length 1.52–1.54 mm, extending to bases of metacoxae. *Antenna*: Segment I, length 0.30–0.32 mm; II, 1.32–1.38 mm; III, 0.64–0.72 mm; IV 0.30–0.32 mm. *Pronotum*: Length 0.62–0.64 mm, basal width 1.32–1.34 mm.

Hosts. This species has been previously recorded from bur oak, *Quercus macrocarpa* Michx. (Knight, 1923, 1941), and live oak, *Q. virginiana* Mill. (Blatchley, 1926). A. G. Wheeler and I have collected *A. nigrolineatum* in abundance on post oak, *Q. stellata* Wangenh., in Texas, and J. A. Slater reared it from *Q. rubrum* in Iowa. It also disperses as adults to other flowering plants, probably accounting for the *Rhus glabra* record listed in the "specimen examined" data. D. Polhemus' (1994) record of this species on Gambel's oak is referred to *O. polhemusi* Henry.

Distribution. *A. nigrolineatum* was previously known from Canada (Manitoba) and much of eastern United States (Connecticut, Florida, Georgia, Illinois, Minnesota, Mississippi, Missouri, Ohio, Pennsylvania, and Texas) (Henry and Smith, 1979; Henry and Wheeler, 1988). Polhemus (1994) Colorado record is here referred to *A. polhemusi* Henry. New U. S. state records for this species are Iowa, North Carolina,



Figs. 8-13. Scanning electron micrographs of *Americodema nigrolineatum*. 8. Head and pronotum, lateral aspect (107 \times). 9. Ostiolar area (268 \times). 10. Male genital capsule, lateral aspect (164 \times). 11. Enlargement of genital keel, lateral aspect (985 \times). 12. Enlargement of genital keel, caudal aspect (1780 \times). 13. Male genital capsule, caudal aspect (144 \times).

Oklahoma, Tennessee, and Virginia. Ontario is a new province record for Canada. Nuevo Leon and San Luis Potosi represent the first records for Mexico.

Material examined. CANADA: **Ontario:** 1 ♀, Ottawa 3-VII-1904, W. Metcalfe, oak (AMNH). MEXICO: **Nuevo Leon:** 3 ♀♀, 7 mi S Monterrey, Apr. 17, 1978, J. C. Schaffner, on live oak (TAM). **San Luis Potosi:** 1, ♂, 3 ♀♀, 2 mi E of Ciudad del Maiz, Apr. 12, 1979, T. P. Friedlander and J. C. Schaffner, taken from *Quercus sideroxyla* Humbolt & Bonpland [plant det K. Nixon '88](TAM). UNITED STATES: **Connecticut:** 1 paratype ♀, Orange, 22 June 1920, B. H. Walden (USNM). FLORIDA: 3 ♂♂, 1 ♀, Sanford, March 15, 1927, E. D. Ball (USNM). **Georgia:** 1 ♂, Atlanta, 5-6-43, P. W. Fattig (USNM). **Iowa:** 2 ♀♀, Ames, V-28-1951, J. A. Slater, reared from *Quercus rubrum* (AMNH). **Minnesota:** 1 ♂, 6 ♀♀ (including 5 paratypes), Anoka Co., June 11, 1920, H. H. Knight (USNM); 8 ♂♂, 5 ♀♀ (paratypes),

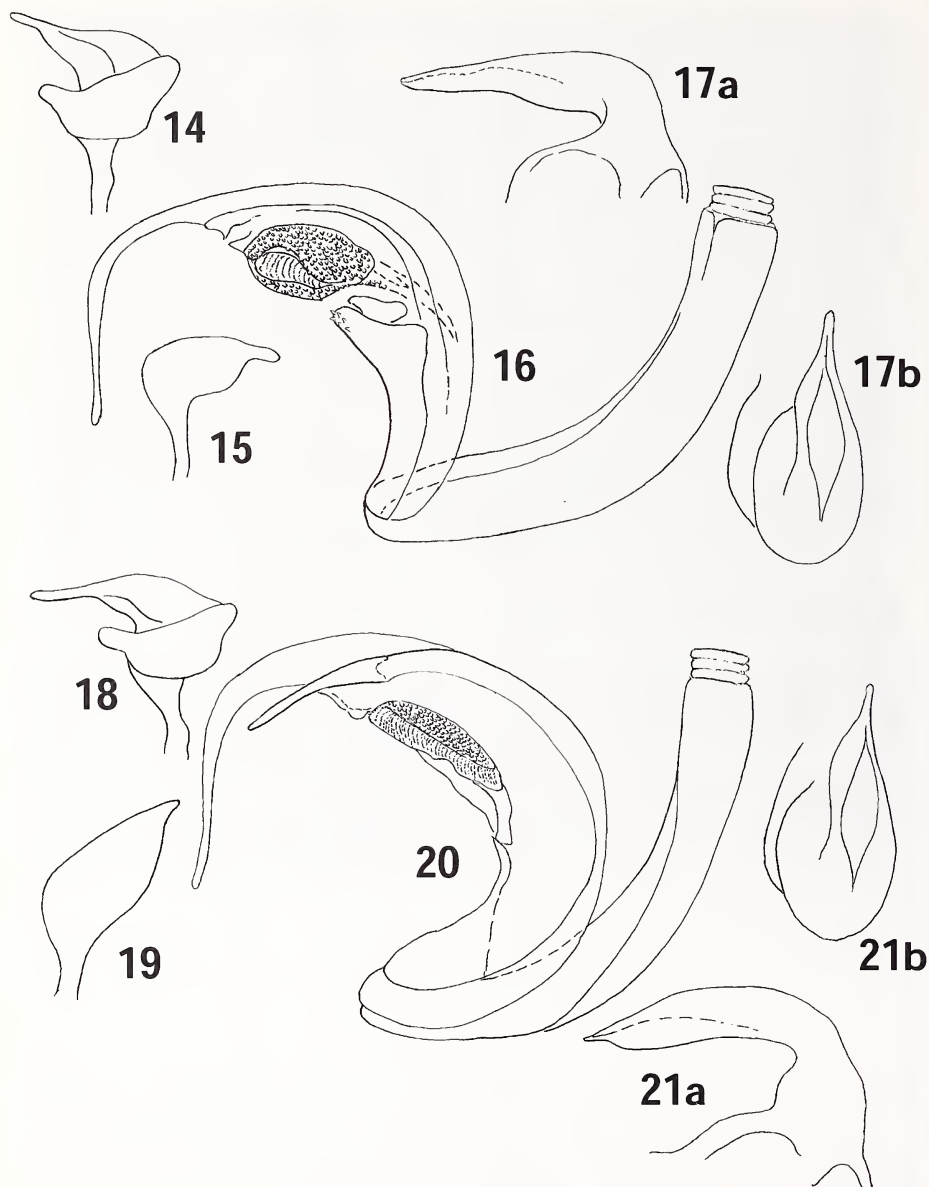
St. Anthony Park, June 10, 1920, H. H. Knight (USNM); 54 ♂♂, 43 ♀♀ [plus many other specimens, including paratypes, from this locality], St. Anthony Park, June 6–11, 1923 & July 1, 1924, H. H. Knight (USNM); 3 ♂♂, 2 ♂♂ (paratypes), Lakeland, June 14, 1922, H. H. Knight (USNM). **Missouri:** 1 ♂, Marston, May 10, 1942, R. C. Froeschner (USNM). **North Carolina:** 1 ♀, Mecklenburg Co., Rt 51, 1 mi W. of Rt. 16, nr Matthews, 26 Apr. 1976, A. G. Wheeler, Jr., taken on *Quercus stellata* (AMNH). **Oklahoma:** 1 ♀, Tuskahoma, 5-23-28, R. H. Beamer (Kansas University). **Tennessee:** 5 ♂♂, 2 ♀♀, Hamilton Co., May 10, 1943, Turner, light at edge of peach orchard (USNM). **Texas:** 1 ♂, Brazos Co., April 14, 1931, R. K. Fletcher (USNM); 6 ♂♂, 1 ♀, Brazos Co., Bryan, March 30–31, 1967, April 10–16, 1967–72, at light, J. C. Schaffner (USNM); 1 ♂, 1 ♀, Brazos Co., College Station, H. G. Johnston, April 5–11, 1928, at light (USNM); 1 ♀, Brazos Co., College Station, April 30, 1930, no collector (USNM); 1 ♂, 5 ♀♀, Brazos Co., College Station, Apr. 15, 1978, T. J. Henry, J. C. Schaffner, and R. T. Schuh, taken on *Quercus virginiana* (AMNH); 7 ♂♂, 6 ♂♂, Brazos Co., College Station, 29–30 Apr. 1983, T. J. Henry and A. G. Wheeler, Jr., taken on *Quercus stellata* (USNM). **Virginia:** 1 ♀, Dyke, May 28, 1915, W. L. McAtee, on *Rhus glabra* (USNM); 1 ♂, 1 ♀, Mountain L., July 22, 1940, L. J. and M. J. Milne (USNM).

Occidentodema, new genus

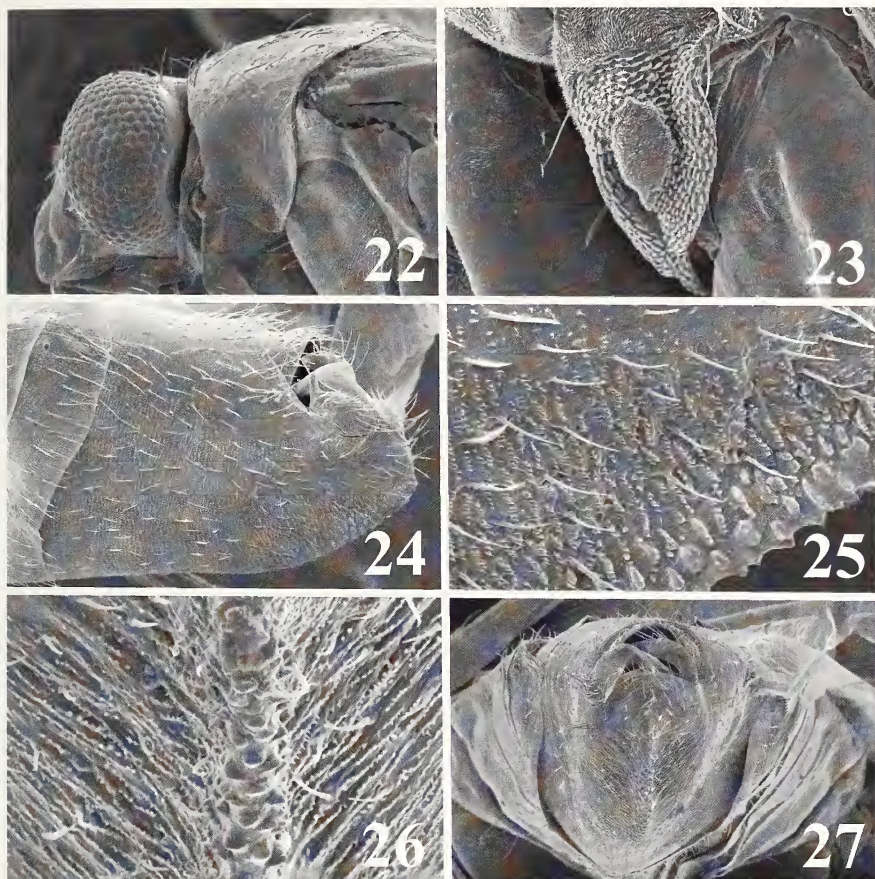
Type species. *Occidentodema mcfarlandi* Henry, new species.

Diagnosis. Species pale greenish white to golden brown, with a distinct black dorsal line on each femur; vesica of male weakly S-shaped (Figs. 44, 48, 52), but not twisted, apex with a slender, relatively short spiculum, sometimes with a very small second spiculum, and the secondary gonopore apical.

Description. Length 2.88 to 4.44 mm. Elongate, oval. General coloration pale greenish white to golden brown, with distinct fuscous lines and spots on the legs and antennae. Head much broader than long; eyes prominent, granulate, more so in males; vertex less than $\frac{1}{2}$ the width of head in males, subequal to $\frac{1}{2}$ in females. Rostrum extending to metacoxae; length of segments I, II, and IV subequal, segment III slightly shorter. Antennae slender, length ranging from 0.68–0.90 the length of body in ♂♂, from 0.65–0.69 in ♀♀; segment I shortest, stoutest; segment II longest, segment III ranging from 0.53–0.67 the length of II in ♂♂, from 0.61–0.67 in ♀♀; segment IV slightly longer than I. Pronotum trapeziform, about two times wider at base than median length; scutellum equilateral. Hemelytra subparallel, opaque to translucent, particularly on corium; pubescence short, simple, recumbent; membrane translucent with two distinct areoles. Legs slender; each femur with a narrow dorsal fuscous line, often marked with small spots on the anterior face of the metafemur; each tibia with black knee spot and a narrow black line on basal half, tibial spines lacking dark spots at bases, metatibia sometimes with a few indistinct dark spots at bases of basal spines; claws with hairlike parempodia. Male genital capsule with a distinct median keel ventrally (Figs. 24–27, 30–33, 37–41), extending from base of segment to truncated caudal area just below aperture; left (Figs. 42, 46, 50) and right (Figs. 43, 47, 51) parameres typically phyline; vesica (Figs. 44, 48, 52) stout, weakly S-shaped with a large, distinct, apical secondary gonopore; phallosome (Figs. 45, 49, 53) slender, narrowly tapered to apex, without lateral notch or tooth.



Figs. 14-21. Male genitalia of *Americodema* spp. 14-17, *A. knighti*. 14. Left paramere. 15. Right paramere. 16. Vesica. 17a. Phallosome, lateral aspect. 17b. Phallosome, dorsal aspect. 18-21, *A. nigrolineatum*. 18. Left paramere. 19. Right paramere. 20. Vesica. 21a. Phallosome, lateral aspect. 21b. Phallosome, dorsal aspect.



Figs. 22–27. Scanning electron micrographs of *Occidentodema clypealis*. 22. Head and pronotum, lateral aspect (129 \times). 23. Ostiolar area (214 \times). 24. Male genital capsule, lateral aspect (177 \times). 25. Enlargement of genital keel, lateral aspect (640 \times). 26. Enlargement of genital keel, caudal aspect (735 \times). 27. Male genital capsule, caudal aspect (158 \times).

Etymology. The generic name *Occidentodema* is created from the Latin “occidentalis,” meaning of the west, and the suffix from the root of the generic name *Icodema* to reflect the historical association of this genus to *Americodema* and the Palearctic *Icodema infuscatum*. Like *Americodema* and *Icodema*, the gender is interpreted as neuter, following Steyskal (1973).

Discussion. Generic relationships are discussed in the discussion under the generic description of *Americodema*.

***Occidentodema clypealis*, new species**

Figs. 22–27, 42–45

Diagnosis. Recognized by the combination of its small size, the overall pale yellowish coloration, with a golden to orange tinge on the head and pronotum, the rosaceous

tinge along the side of the abdomen, the fuscous spot at the apex of the tylus, and by the distinct dorsal stripe on each femur. *Occidentodema clypealis* is similar to *O. polhemusi* and *Americodema nigrolineatum* in having a black spot on the apex of the tylus, but can be separated from *O. polhemusi* by the shorter second antennal segment that is less than the width across the hemelytra, and from *A. nigrolineatum* by the shorter body length, golden-yellow coloration and the distinct fuscous dorsal stripe on the mesofemur.

Description. Male (N = 10): Length 3.16–3.52 mm, width 1.20–1.22 mm. Overall coloration pale yellow, with the head and pronotum accented with gold or orange. Dorsal pubescence short, recumbent, pale golden yellow. *Head* (Fig. 22): Width 0.72–0.74 mm, vertex 0.26–0.30 mm; uniformly pale yellow, tinged with orange on frons and tylus; apex of tylus with a distinct black spot. *Rostrum*: Length 1.10–1.18 mm, extending to apices of metacoxae. *Antenna*: Segment I, length 0.24–28 mm; II, 1.08–1.18 mm; III, 0.60–0.62 mm; IV, 0.24–0.30 mm; overall coloration golden yellow; segment I with two distinct fuscous stripes extending entire length, one ventrolateral and the other more dorsal along inner margin; II, brownish yellow, with a short fuscous stripe at base, this stripe sometimes extending nearly to middle of segment as a very narrow reddish line; segments III and IV brownish. *Pronotum*: Length 0.44–0.48 mm, basal width 0.96–1.04 mm. Hemelytra pale golden yellow, tinged with pale brown, membrane pale translucent whitish, accented with pale golden brown, particularly inside small areole, area bordering veins, and apex. *Ostiole area*: Fig. 23. Abdomen pale yellow, basal two segments ventrally and a broad stripe laterally rose colored or red. Legs slender, pale yellow; each femur with a fuscous stripe extending from apex to about middle along dorsal margin, metafemur also with a shorter fuscous stripe ventrally on apical $\frac{1}{4}$ and a few small, indistinct spots on anterior face; each tibia with a distinct fuscous knee spot and a narrow fuscous stripe on basal $\frac{1}{3}$ to $\frac{1}{4}$, metatibia usually with indistinct fuscous spots at bases of spines.

Male genital capsule and median keel (24–27); left paramere (Fig. 42); right paramere (Fig. 43); vesica (Fig. 44); phallosome (Fig. 45).

Female (N = 8): Length 2.88–3.20 mm, width 1.26–1.40 mm. *Head*: Width 0.66–0.68 mm, vertex. *Rostrum*: Length 1.12–1.20 mm, extending to bases of metacoxae. *Antenna*: Segment I, length 0.24–0.26 mm; II, 0.86–0.96 mm; III, 0.58–0.60 mm; IV, 0.26–0.28 mm. *Pronotum*: Length 0.46–0.48 mm, basal width 1.02–1.04 mm.

Etymology. Named “clypealis” to emphasize the fuscous spot at the apex of the clypeus or tylus.

Host. Taken on *Quercus reticulata* Humbolt & Bonpland and Shrub live oak, *Quercus turbinella* Greene. I note that the small series taken on *Q. reticulata* Humbolt & Bonpland in Arizona, was collected along with a much larger series of *O. polhemusi* (all females).

Distribution. United States (Arizona).

Types. Holotype, ♂, UNITED STATES: **Arizona**: Gila Co., 8 mi SW Jct. of Rts 87 & 188 (off Rt. 87), Tonto Nat'l For., 4,000 ft, May 27–28 1983, R. Schuh and G. Stonedahl, ex. mercury vapor light (AMNH). Paratypes: UNITED STATES: **Arizona**: 1 ♂, 4 ♀♀, Cochise Co., 1.5 mi towards Portal from Onion Saddle, 2,350 m, June 13, 1980, RT Schuh, K & R Schmidt, ex. *Quercus reticulata* Humb. & Bonpl. (AMNH); 53 ♂♂, 3 ♀♀, same data as for holotype (AMNH, 8 USNM); 3 ♂♂, 2 ♀♀, Gila Co., Old CCC Campgrd. S. of Globe on Pioneer Pass Rd., 4,700 ft,

May 30–31, 1983, R. T. Schuh, G. M. Stonedahl, and B. M. Massie, collected at light on white sheet attracted by mercury vapor lamp (AMNH); 3 ♂♂, 2 ♀♀, Maricopa Co., Salt R. Can., at Apache Lake, 2,000', IV-28-81, D. A. & J. T. Polhemus (JTPC); 2 ♂♂, Maricopa Co., Sunflower, CL1666, VI-2-81, J. T. Polhemus (JTPC); 1 ♀, Yavapai Co., 4 mi S. of Prescott Nat. For. Boundary S. of Prescott, \pm 1,600 m, June 20, 1980, R.T. Schuh, ex *Quercus turbinella* Greene (AMNH); 5 ♂♂, 6 ♀♀, Yavapai Co., 1 mile South of Yarnell on Rt. 89, June 3, 1983, G. M. Stonedahl, taken on *Quercus turbinella* Greene (Fagaceae) (AMNH; 2 USNM).

***Occidentodema mcfarlandi*, new species**

Figs. 28–35, 46–49

Diagnosis. Recognized by the overall pale golden-yellow coloration, the lack of a fuscous spot on the tylus, the numerous, small fuscous spots on the femora, particularly the metafemur, and by the strong fuscous lines along the dorsal margin of each femur. *Occidentodema mcfarlandi* is most similar to *O. clypealis* in size and general golden-yellow coloration, but is readily separated by the lack of a fuscous spot at the apex of the tylus.

Description. Male (N = 10): Length 3.28–3.88 mm, width 1.30–1.38 mm. Overall coloration pale golden yellow. Dorsal pubescence short, simple, golden yellow, and recumbent. *Head* (Fig. 28): Width 0.76–0.80 mm, vertex 0.30–0.32 mm; uniformly pale golden yellow. *Rostrum*: Length 1.32–1.44 mm, extending to apices of mesocoxae or bases of metacoxae. *Antenna*: Segment I, length 0.30–0.32 mm; II, 1.42–1.46 mm; III, 0.90–0.92 mm; IV, 0.32–0.38 mm; overall coloration pale to golden yellow; segment I with two distinct, fuscous stripes, one on ventral surface extending from apex to base, more lateral one extending from apex to about $\frac{3}{4}$ distance to base; segment II with an elongate fuscous spot at base, usually no longer than diameter of segment, sometimes diffusing into a more elongate stripe. *Pronotum*: Length 0.56–0.58 mm, basal width 1.12–1.14 mm. Hemelytra and membrane uniformly translucent pale golden yellow, middle of basal edge and small areole infuscated. *Ostiolar area*: Figs. 29, 30. Legs slender, pale yellow; pro- and mesofemora with a distinct, fuscous line extending from apex to midway along dorsal margin; metafemur with both a dorsal and ventral line, the dorsal one extending over apical $\frac{1}{2}$ and ventral ones along apical $\frac{1}{3}$; each tibia with a distinct fuscous knee spot and a narrow fuscous line extending from base to about midway on each segment; a few basal spines on metatibia bearing indistinct dark spots; claw (Fig. 35).

Male genital capsule and median keel (Figs. 31–34); left paramere (Fig. 46); right paramere (Fig. 47); vesica (Fig. 48); phallosome (Figs. 49a, b).

Female (N = 10): Length 3.24–3.84 mm, width 1.40–1.56 mm. *Head*: 0.70–0.76 mm, vertex 0.34–0.36 mm. *Rostrum*: Length 1.30–1.42 mm, extending to apices of mesocoxae. *Antenna*: Segment I, length 0.28–0.30 mm; II, 1.02–1.12 mm; III, 0.62–0.76 mm; IV, 0.30–0.32 mm. *Pronotum*: Length 0.54–0.60 mm, basal width 1.18–1.26 mm.

Etymology. This species is named in honor of Noel McFarland (Hereford, AZ) in appreciation of his numerous donations of Arizona Miridae to the USNM, including large series of *A. mcfarlandi*, and for his local hospitality while performing fieldwork in the Huachuca Mountains of southeastern Arizona.

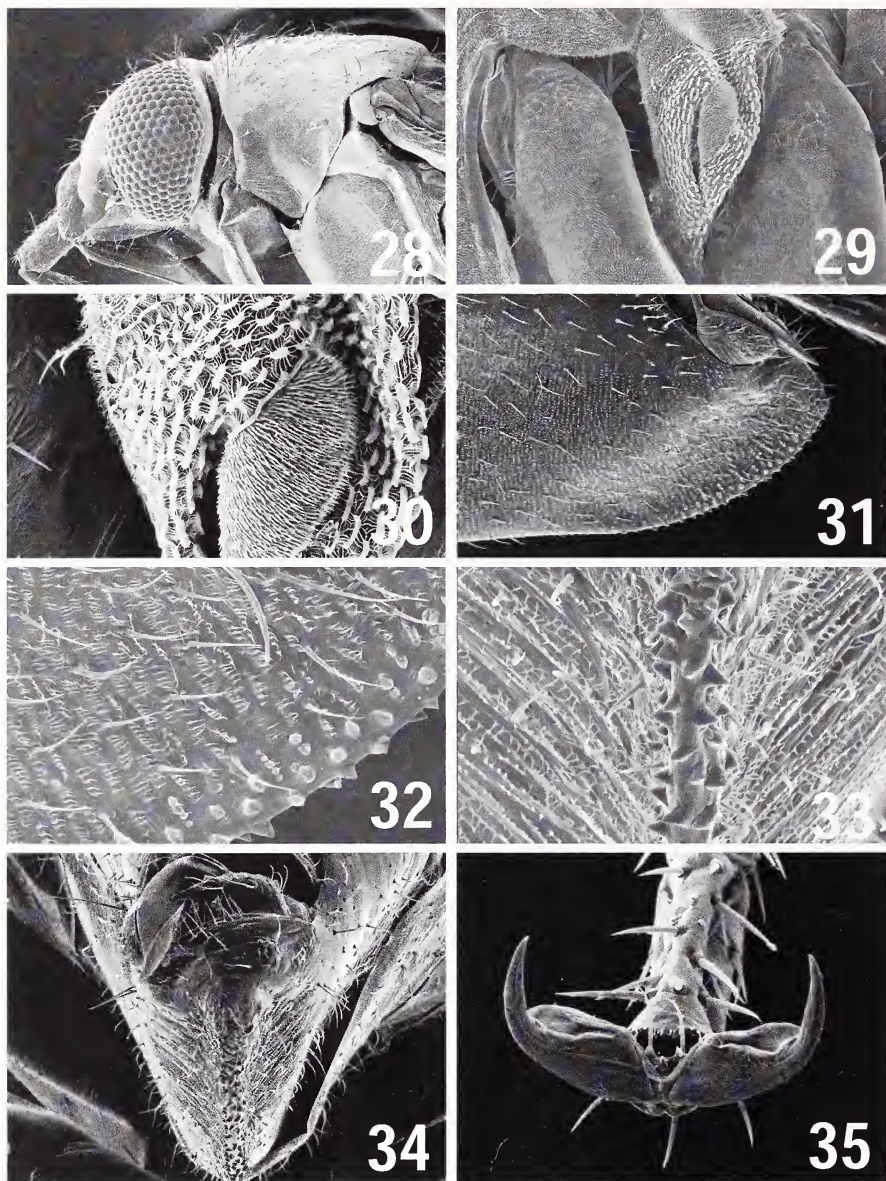
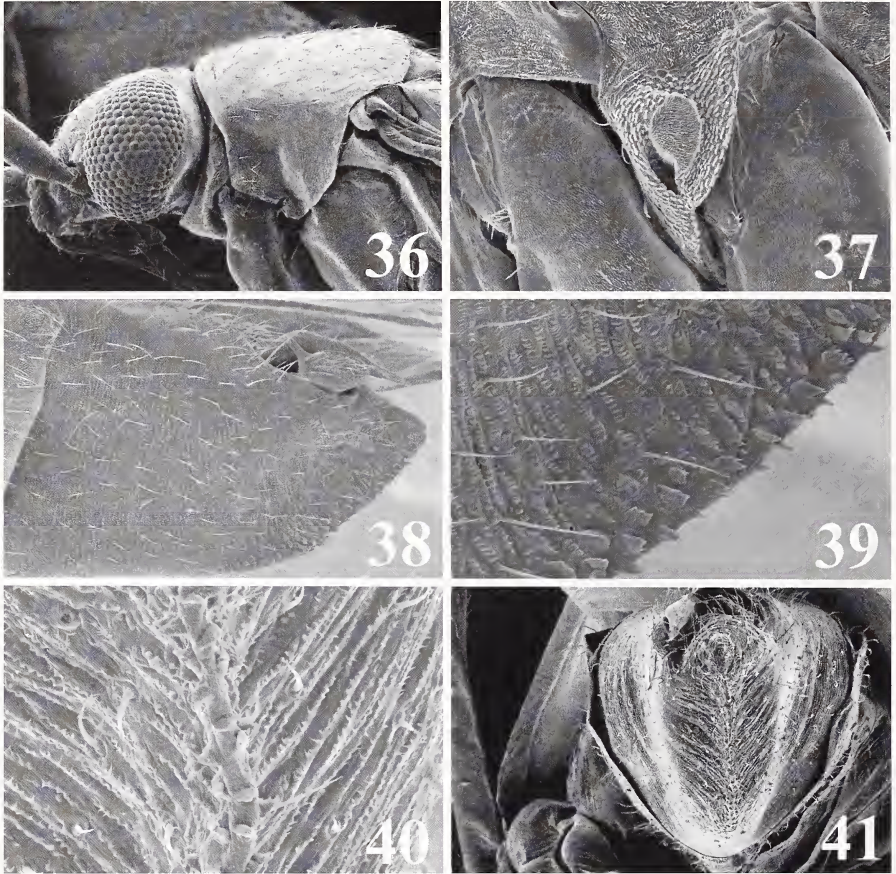


Fig. 28–35. Scanning electron micrographs of *Occidentodema mcfarlandi*. 28. Head and pronotum, lateral aspect (110 \times). 29. Ostiolar area (280 \times). 30. Enlargement of ostiolar area (900 \times). 31. Male genital capsule, lateral aspect (208 \times). 32. Enlargement of genital keel, lateral aspect (655 \times). 33. Enlargement of genital keel, caudal aspect (825 \times). 34. Male genital capsule, caudal aspect (212 \times). 35. Pretarsal claw (700 \times).

Hosts. Arizona white oak, *Quercus arizonica* Sarg.; Emory's oak, *Q. emoryi* Torr.; Gambel's oak, *Q. gambelii* Nutt.; Mexican blue oak, *Q. oblongifolia* Torr.; shrub live oak, *Q. turbinella* Greene; rocky mountain scrub oak, *Q. undulata* Torr.; *Quercus* sp.

Distribution. Mexico (Aguascalientes, Sonora) and the United States (Arizona, Texas, and Utah).

Types. Holotype ♂, UNITED STATES: **Arizona:** Cochise Co., Huachuca Mts., 5334 Ash Cyn. Rd., 0.5 mi W Hwy 92, el. 5,100 ft, 29 Apr. 1993, at UV light, N. McFarland (USNM). Paratypes: MEXICO: **Aguascalientes:** 7 ♂♂, 1 mile east Calvillo, July 11, 1983, take at blacklight, Kovarik, Harrison, Schaffner (5 TAM, 2 USNM). **Sonora:** 2 ♂♂, 2 ♀♀, 11 mi E. Maicova, IV-26-82, D. A. and J. T. Polhemus, on *Quercus* sp. (JTPC). UNITED STATES: **Arizona:** 56 ♂♂, 42 ♀♀, same data as for holotype, with following range of dates: 26 April to 17 June 1992–1993 (USNM); 1 ♂, Cochise Co., Portal, 4,770', IV-28-81, D. A. and J. T. Polhemus, on *Quercus emoryi* (Emory oak) (JTPC); 61 ♂♂, 43 ♀♀, Cochise Co., vicinity of Portal, 1,500–1,700 meters, May 2–7, 1978, R. T. Schuh, taken on *Quercus emoryi*, *Quercus oblongifolia* Torr., and *Quercus* sp. (Fagaceae) (AMNH); 18 ♂♂, 8 ♀♀, Cochise Co., Onion Saddle W to 3.5 mi E Nat. For. Bndry, Chiricahua Mts., 5,300–5,600 ft, 6/3/1983, R. T. Schuh and G. M. Stonedahl, on *Quercus oblongifolia* Torr (AMNH); 8 ♀♀, Cochise Co., Road from Portal-Rustler Park, Chiricahua Mts., 6,500 ft, June 2, 1983, R. T. Schuh and G. M. Stonedahl, on *Quercus undulata* Torr. (Fagaceae) (AMNH); 5 ♂♂, 6 ♀♀, Gila Co., 2 mi SE of Gila Co. line (4 mi. NE of Strawberry) on Rt. 87, 6,500 ft, June 15, 1983, R. T. Schuh and M. D. Schwartz, on *Quercus arizonica* Sarg. (Fagaceae) (AMNH); 1 ♂, 4 ♀♀, Gila Co., 8 mi SW Jct. of Rts. 87 & 188 (off Rt. 87 at Rd. 171), Tonto Nat'l For., 4,000, May 27–28, 1983, R. Schuh and G. M. Stonedahl, on *Quercus turbinella* Greene (Fagaceae) (AMNH); 17 ♂♂, 16 ♀♀, Graham County, Stockton Pass, Pinaleno Mts., elv. 5,200–5,500 ft, June 1–2, 1983, R. T. Schuh and G. M. Stonedahl, ex. Mercury vapor light (AMNH); 6 ♂♂, 22 ♀♀, Mohave Co., Hualapi Mts., SE Kingman, T20N R15W, 4,000–6,400 ft, June 9–10, 1983, R. T. Schuh, M. D. Schwartz, and G. M. Stonedahl, *Quercus tubinella* Greene (AMNH); 7 ♂♂, 10 ♀♀, Navajo Co., 15–20 miles SW Show Low, 5,200–6,000 ft., May 30, 1983, R. T. Schuh, G. M. Stonedahl, and B. M. Massie, *Quercus* cf. *arizonica* Sarg. (AMNH); 1 ♂, Pima Co., Santa Rita Mtns, Madera Can., V-25-82, CL103, C. N. McKinnan, on *Quercus* sp. (JTPC); 10 ♂♂, 12 ♀♀, Pima Co., Santa Catalina Mts., Molino Basin Camp Grounds, 8 April 1989, T. J. Henry and A. G. Wheeler, Jr., taken on *Quercus oblongifolia* (USNM); 7 ♂♂, 2 ♀♀, Pima Co., Sabino Cany. Baboquivari Mtns., IV-20-82, D. A. and J. T. Polhemus, *Quercus arizonica* (Arizona white oak) (JTPC); 11 ♂♂, 25 ♀♀, Yavapai Co., 15.8 miles south of Ash Fork on Rt. 89, June 4, 1983, G. M. Stonedahl, *Quercus turbinella* (AMNH); 35 ♀♀, Yavapai Co., 4 mi S of Prescott Nat. For. Boundary S of Prescott, ± 1,600 m, June 20, 1980, R. T. Schuh, on *Quercus turbinella* Greene (Fagaceae) (AMNH). **Texas:** 5 ♂♂ [Brewster], Alpine, May 5, 1927, J. O. Martin (CAS); 11 ♂♂, 32 ♀♀, Culberson Co., just N. of Guadalupe Mts. Nat'l Pk., 1,660 m, Apr. 28, 1978, R. T. Schuh (ANMH); 2 ♂♂, 4 ♀♀, Jeff Davis Co., Davis Mtns., 3 mi W Ft. Davis, IV-30-82, D. A. and J. T. Polhemus, on *Quercus emoryi* (Emory oak) (JTPC); 13 ♂♂, 15 ♀♀, Pecos Co., 45 miles southeast of Ft. Stockton, April 17, 1985, J. C. Schaffner coll. (TAM, USNM); 1 ♀, Pecos Co., 36 mi. S. Ft. Stockton, 4,500', V-2-82, D.A. & J.T. Polhemus, on *Quercus* sp. (JTPC). **Utah:** 1 ♂, 6



Figs. 36-41. Scanning electron micrographs of *Occidentodema polhemusi*. 36. Head and pronotum, lateral aspect (106 \times). 37. Ostiolar area (440 \times). 38. Male genital capsule, lateral aspect (161 \times). 39. Enlargement of genital keel, lateral aspect (625 \times). 40. Enlargement of genital keel, caudal aspect (960 \times). 41. Male genital capsule, caudal aspect (155 \times).

♀ ♀, Washington Co., Zion National Park, 7 mi NE St. Rt. 15 on Kolob Rsrv. Rd., 4,000-5,000 ft, May 25, 1981, M. D. Schwartz, on *Quercus gambelii* Nutt. (Fagaceae) (AMNH).

***Occidentodema polhemusi*, new species**

Figs. 36-41, 50-53

Icodema nigrolineatum: D. Polhemus 1994: 130.

Diagnosis. This species is recognized by the combination of its relatively large size, second antennal segment that is longer than the width across the hemelytra, the overall pale greenish-white coloration, the fuscous spot at the apex of the tylus and the distinct dorsal stripe on each femur. *Occidentodema polhemusi* is most similar

to *Americodema nigrolineatum* in the larger general size and overall pale greenish-white coloration, but can be separated by the much longer second antennal segment and the one to three small fuscous spots on the anterior face of the metafemur.

Description. Male (N = 10): Length 3.83–4.44 mm, width 1.32–1.40 mm. Overall coloration pallid to pale greenish white. *Head* (Fig. 36): Width 0.76–0.80 mm, vertex 0.30–0.32 mm; pallid to pale greenish white, apex of tylus with a fuscous or black spot. *Rostrum*: Length 1.38–1.52 mm, extending to bases of metacoxae. *Antenna*: Segment I, length 0.32–0.36 mm; II, 1.52–1.64 mm; III, 1.00–1.10 mm; IV, 0.38–0.42 mm. *Pronotum*: Length 0.48–0.56 mm, basal width 1.00–1.08 mm. Hemelytra pallid to pale greenish white, corium more translucent; membrane translucent with a whitish cast, area inside small areole infuscated. *Ostiole area*: Fig. 37. Legs pale; each femur with a fuscous dorsal stripe on apical $\frac{1}{2}$ to $\frac{2}{3}$, meso- and metafemora also with a shorter ventral stripe on apical $\frac{1}{4}$; anterior face of metafemur with one or two small fuscous spots on apical $\frac{1}{3}$; each tibia with a large fuscous knee spot and a fuscous stripe on basal $\frac{1}{3}$ to $\frac{1}{2}$, metatibia with small fuscous spots at bases of spines.

Male genital capsule and median keel (Figs. 38–41); left paramere (Fig. 50); right paramere (Fig. 51); vesica (Fig. 52); phallosome (Fig. 53).

Female (N = 10): Length 3.66–4.00 mm, width 1.40–1.44 mm. *Head*: Width 0.68–0.70 mm, vertex 0.32–0.34 mm. *Rostrum*: Length 1.36–1.38 mm. *Antenna*: Segment I, length 0.28–0.32 mm; II, 1.16–1.20 mm; III, 0.78–0.80 mm; IV, 0.32–0.38 mm. *Pronotum*: Length 0.52–0.54 mm, basal width 1.14–1.16 mm.

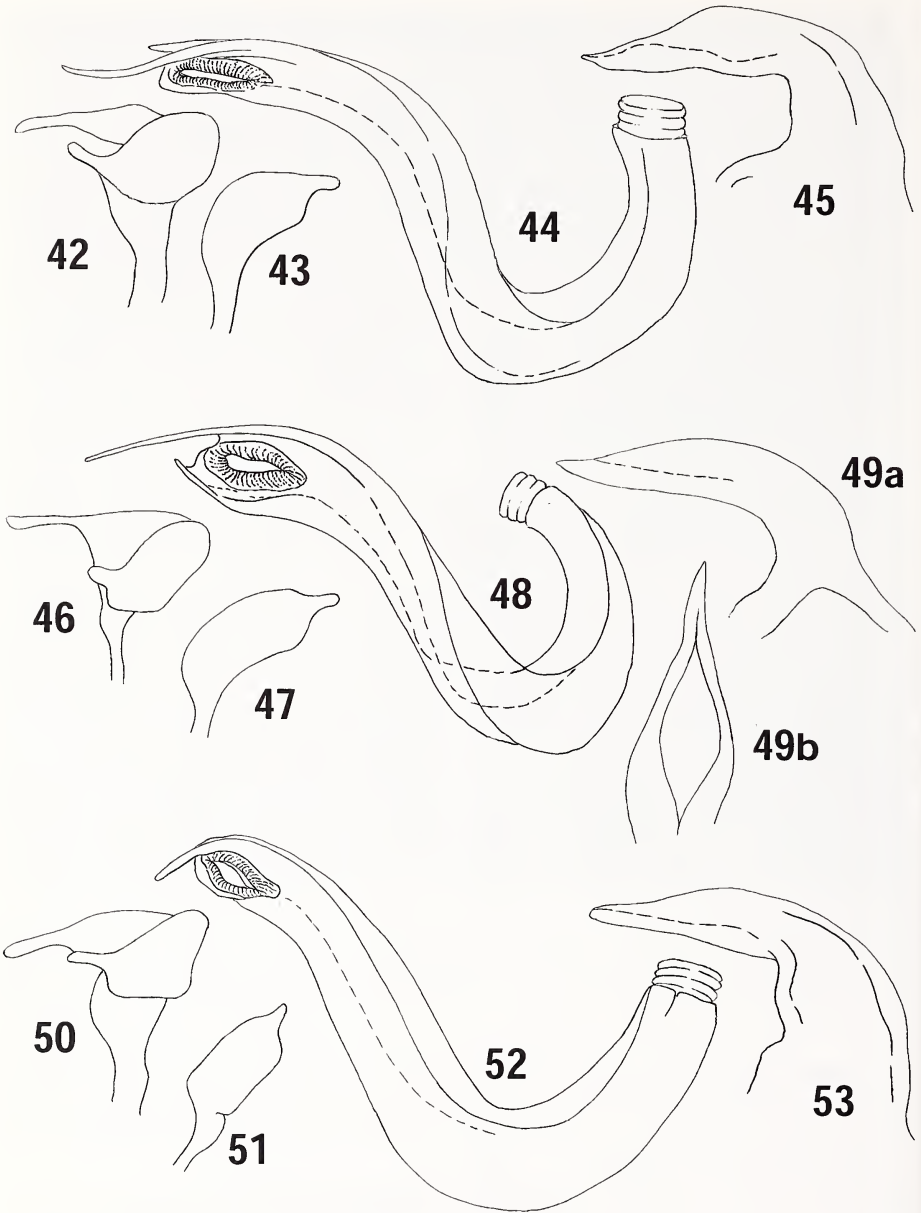
Etymology. This species is named in honor of my long-time friend and colleague, Dr. John T. Polhemus, on the occasion of his 70th birthday, who also collected many specimens used in the description of this new species, including the holotype.

Host. Found most commonly on Gambel's oak, *Quercus gambelii* Nutt. A small series from Sevier Co., Utah, is labeled from *Artemisia* sp., indicating a possible error or a case of dispersing adults to the inflorescences of *Artemisia*.

Distribution. United States (Arizona, Colorado, New Mexico, and Utah).

Discussion. In April 1989, A. G. Wheeler, Jr. and I collected 23 specimens (only 5 of which were males) on Arizona sycamore, *Platanus wrightii* S. Watson, in Madera Canyon, Pima Co., Arizona. These specimens are very similar to *O. polhemusi* in general appearance, shape of the male genital capsule, and the male vesica, but all lack the distinct black spot at the apex of the tylus, a marking that is consistently present or absent in all other species. The teneral condition of several specimens might explain the absence of the characteristic black spot, and it is also possible the entire series was accidental on sycamore, although no specimens were taken on *Quercus* at this locality. Until additional material is collected to show otherwise, I consider this series to represent *O. polhemusi*.

Types. Holotype, ♂, UNITED STATES: **New Mexico**: Sandoval Co., Jemez Mtns., 10 mi W. Los Alamos, VII-4-[19]82, D. A. & J. T. Polhemus colls., taken on *Quercus gambelii* (Gambel oak) (USNM). Paratypes: UNITED STATES: **Arizona**: 42 ♀♀, Cochise Co., 1.5 mi towards Portal from Onion Saddle, 2,350 m, June 13, 1980, RT Schuh, K & R. Schmidt, ex. *Quercus reticulata* Humb. & Bonpl. (AMNH); 1 ♀, [Coconino Co.], Grand Canyon, Alt. 7,000', June 22, 1925, A. A. Nichol (USNM); 2 ♂♂, 3 ♀♀, [Coconino Co.], Williams, Alt. 7,000', June 15, 1925, A. A. Nichol (USNM) 4 ♂♂, 7 ♀♀ [Coconino Co.], Grand Canyon, S. Rim, VI-24-1930, R. L.



Figs. 42-53. Male genitalia of *Occidentodema* spp. 42-45, *O. clypealis*. 42. Left paramere. 43. Right paramere. 44. Vesica. 45. Phallosome. 46-49. *O. mcfarlandi*. 46. Left paramere. 47. Right paramere. 48. Vesica. 49a. Phallosome, lateral aspect. 49b. Phallosome, dorsal aspect. 50-53. *O. polhemusi*. 50. Left paramere. 51. Right paramere. 52. Vesica. 53. Phallosome, lateral aspect.

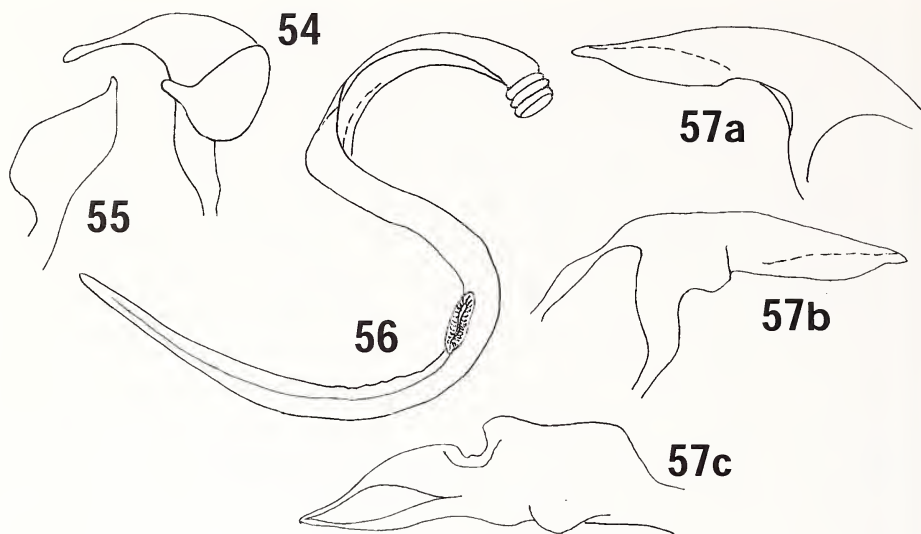
Usinger (CAS); 1 ♂, Graham Co., Stockton Pass, Pinaleno Mts., elev. 5,200–5,500 ft, June 1–2, 1983, R. T. Schuh and G. M. Stonedahl colls., collecting at night on white sheet attracted by mercury vapor trap (AMNH); 14 ♂♂, 12 ♀♀, Mohave Co., Hualapi Mts., SE Kingman, T20W R15W, 4,000–6,400 ft, June 9–10, 1983, R. T. Schuh, M. D. Schwartz, and G. M. Stonedahl, taken on *Quercus gambelii* Nutt. (Fagaceae) (AMNH; 4 USNM). **Colorado:** 5 ♀♀, Douglas Co., Perry Park, VII-8-82, J. T. Polhemus, on *Quercus gambelii* (Gambel oak) (JTPC); 3 ♂♂, 4 ♀♀, Garfield Co., 10 mi E. Glenwood Springs, VI-22-82, J. T. Polhemus, on *Quercus gambelii* (Gambel oak) (JTPC); 2 ♀♀, Garfield Co., W Evacuation Creek, 11 mi SE CO St. Border, on UT Rt. 45, el. 6,800 ft, July 9, 1981, M. D. Schwartz, taken on *Quercus gambelii* Nutt. (Fagaceae) (AMNH); 3 ♂♂, Grand Co., nr. Taylor Flats, VII-4-80, J. T. and D. A. Polhemus (JTPC); 5 ♀♀, Jefferson Co., Deer Creek Cyn., VII-27-82, J. T. Polhemus, on *Quercus gambelii* (Gambel oak) (JTPC); 1 ♀, Montrose Co., 18 mi E. of Naturita on Colo. 90, VII-7-80, J. T. and D. A. Polhemus (JTPC). **New Mexico:** 8 ♂♂, same data as for holotype (JTPC, NMNH). **Utah:** 3 ♂♂, 15 ♀♀, Carbon Co., entr. Price Cyn Recr. Area, 8 mi NW Helper, rt. 50/6, T12E R9E, 8,000 ft, July 9, 1982, M. D. Schwartz, on *Quercus gambelii* Nutt (AMNH); 32 ♂♂, 10 ♀♀, Garfield Co., Mt. Hillers at Starr Springs Cmpgrnd, T34S, R11E, 6,300 ft, June 18, 1983, R. T. Schuh and M. D. Schwartz colls., at mercury vapor light (AMNH; 6 USNM); 1 ♀, Salt Lake Co., mouth of Little Cottonwood Can., on UT St. Rt. 210, elev. 5,800 ft, June 28, 1981, M. D. Schwartz, on *Quercus gambelii* Nutt. (AMNH); 1 ♀, Sanpete Co., Cottonwood Creek, 4.7 mi NE Fairview on 31, 0.5 mi. W Nat'l For. Rd, 7,000 ft, July 12, 1981, M. D. Schwartz, on *Quercus gambelii* Nutt. (AMNH); 2 ♀♀, Sevier Co., Clear Creek Narrows Summit on Rt. 4, 2,244 m, July 15, 1980, R. T. Schuh and G. M. Stonedahl, on *Quercus* sp. (AMNH); 4 ♀♀, Sevier Co., 1.3 mi E Hwy 25 on Mytoge Mtn. Rt., VII-16-1980, 8,600 ft, M. D. Schwartz, labeled as on *Artemisia* sp. (AMNH); 3 ♂♂ (one nymph), Utah Co., Provo Canyon, rt. 92, 1 mi W Sundance Ski Resort, el. 8,000 ft, T4S R3E, July 4, 1982, M. D. Schwartz, on *Quercus gambelii* Nutt (Fagaceae); 1 ♀, Wasatch Co. Dock Flat, 1 mi NE of Ut St. rt. 40, T2S W12W, Sec. 9, elev. 8,000 ft, Aug. 14, 1982, M. D. Schwartz, on *Quercus gambelii* Nutt (AMNH); 7 ♀♀, Wasatch Co., 5 mi W Duchesne Co. line on Ut St. rt. 40, Deep Cyn. T3S R9W, 7,000 ft, July 5, 1981, M. D. Schwartz, on *Quercus gambelii* Nutt (AMNH); 5 ♀♀, Vivian Park, VII-7-22, E. P. Van Duzee (CAS).

Genus *Icodema* Reuter, 1875

Icodema Reuter 1875: 97. Type species: *Plagiognathus infuscatus* Fieber 1861. Monotypic.

Diagnosis. This genus is recognized in the Palearctic by the keeled male genital capsule, the lack of dark spots at the bases of the tibial spines, and the pallid to pale greenish white overall coloration, with only the first antennal segment infuscated and, according to Wagner (1975), with the membrane dark spotted. Autapomorphic for the genus are the very slender S-shaped vesica, with the secondary gonopore well back from the apex, and laterally notched phallosome.

Description. Length 3.70 to 4.70 mm. Elongate, oval. Overall coloration pale yellow. Head broader than long, slightly wider at base than anterior margin of pronotum;



Figs. 54-57. Male genitalia of *Icodema infuscatum*. 54. Left paramere. 55. Right paramere. 56. Vesica. 57a. Phallosome, right lateral aspect. 57b. Phallosome, left lateral aspect. 57c. Phallosome, dorsal aspect.

eyes prominent, granulate, larger in males; vertex relatively narrow, less than $\frac{1}{2}$ the width of head in males, nearly half the width of head in females. Rostrum extending to apices of metacoxae; segment IV longest, length of segments I-III subequal. Antennae long, slender, ranging from 0.72-0.74 the length of body in $\delta\delta$, from 0.71-0.75 in $\eta\eta$; segment I shortest, thickest; segment IV next shortest, slightly more than two times length of I; segment II longest, about two times length of segment III. Pronotum trapeziform, basal width about two times median length; calli weakly defined; scutellum equilateral. Hemelytra subparallel, opaque to nearly translucent on corium; membrane translucent, with two distinct areoles; pubescence relatively short, simple, and recumbent. Legs slender, unmarked, tibial spines lacking dark spots at bases. Male genital capsule with a distinct, ventral, median keel extending from base of segment to ventral edge of aperture; left (Fig. 54) paramere; right (Fig. 55) paramere; vesica S-shaped (Fig. 56), very slender, secondary gonopore small, well back from apex to nearly middle of structure; phallosome (Figs. 57a, b, c) with a distinct notch on right side, most visible from dorsal aspect.

Icodema infuscatum (Fieber), 1861

Figs. 54-57

Plagiognathus infuscatus Fieber 1861: 303.

Icodema infuscatum: Reuter 1875: 97; Oshanin 1909: 896; Wagner 1975: 291; Ehan-
no 1987a: 385, 1987b: 1036.

Icodema infuscatum notaticornis Rey 1894: 1.

Orthotylus pallidus Meyer-Dür 1870: 209. Synonymized by Puton 1873: 24; fol-
lowed by Reuter 1875: 97.

Icodema infuscata annulata Stichel 1956: 276.

Icodema infuscata: Schuh 1995: 326.

Diagnosis. Uniformly pallid to pale green, with antennal segment I often infuscated, legs unmarked, genital capsule distinctly keeled, phallosome notched, forming a toothlike process laterally, and vesica very slender and S-shaped.

Description. Male (N = 5): Length 3.72–4.28 mm, width 1.24–1.44 mm. Overall coloration pallid to pale yellow. *Head*: Width 0.76–0.78 mm, vertex 0.30–0.32 mm; uniformly pale yellow, with apex of tylus usually infuscated. *Rostrum*: Length 1.40–1.60 mm, extending to metacoxae. *Antenna*: Segment I, length 0.26–0.28 mm; II, 1.36–1.50 mm; III, 0.72–0.82 mm; IV, 0.44–0.48 mm; uniformly pale yellow, with segment I often becoming brown; segment II becoming brown in variety *notaticorne* (Wagner 1975). *Pronotum*: Length 0.50–0.58 mm, basal width 1.00–1.12 mm; pale yellow. Hemelytra pale yellow; membrane uniformly translucent pale yellow but, according to Wagner (1975), dark spotted [however, none of the specimens examined have a spotted membrane]; pubescence short, simple, pale yellow, and recumbent. Legs uniformly pale yellow, lacking spots at bases of tibial spines.

Male genital capsule with a distinct ventral median keel; left paramere (Fig. 54); right paramere (Fig. 55); vesica (Fig. 56) very slender, S-shaped, with secondary gonopore well back from apex; phallosome (Figs. 57a, b, c), with a deep notch and tooth subbasally.

Female (N = 4): Length 4.08–4.56 mm, width 1.56–1.68 mm. *Head*: Width 0.76–0.78 mm, vertex 0.34–0.36 mm. *Rostrum*: Length 1.70–1.74 mm, extending to metacoxae. *Antenna*: Segment I, length 0.28–0.32 mm; II, 1.50–1.58 mm; III, 0.84–0.90 mm; IV, 0.42–0.46 mm. *Pronotum*: Length 0.56–0.60 mm; basal width 1.12–1.22 mm.

Females are similar to males, but with broader bodies, narrower heads with smaller, less granulate eyes and a broader vertex.

Hosts. Adults reported on oak, *Quercus* sp., during May and June (Wagner 1975); adults May to July on *Q. pubescens* in France (Ehanno 1987a).

Distribution. Austria, Bulgaria, Finland, France, Germany, Greece, Italy, Spain, Switzerland, Turkey, Yugoslavia; Mediterranean Region, Asia Minor, Balkan Peninsula (Carvalho 1958, Wagner 1975, Ehanno 1987b, Schuh 1995).

Material examined. AUSTRIA: 1 ♂, 1 ♀, Bisamberg, Austr. Inf. (BNHM). GERMANY [?]: 2 ♂♂, 2 ♀♀, Görz, Carniola (BNHM). SPAIN: 1 ♂, 1 ♀, Seva (Barcelona), 2 April 1956, Ribes, on *Quercus* sp. (USNM); 1 ♂, Benicassim (Castellón), 2 April 1956, Ribes (USNM).

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